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Citizens' Bulletin

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Preserving our wetlands

Citizens'
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In Memoriam John Waters

John Waters of Glastonbury, Connecticut died Sunday morning, March 18, 1984. John was 78 and for the past several years had been working with the DEP's Information and Education Unit and had been a major contributor to the Citizens' Bulletin.

John's first exposure to state service came through the federal Senior Environmental Employment Program (SEEP), under which he served two years with the DEP. Following the discontinuation of that program, he was retained under contract to write and perform other public information functions for the department. All this took place at the end of a long, full career in advertising.

Most of our readers are familiar with John's contributions to the Bulletin, particularly his articles on Connecticut State Parks, which brought to life much of the fascinating personal history related to the donors of some of the state's valuable real estate.

John's greatest contributions were a sunny disposition and a supremely cooperative attitude. Whatever the task or inquiry, he undertook its completion or answer with enthusiasm and obvious enjoyment. John will be impossible to replace and is already sorely missed.

"The Connecticut Department of Environmental Protection is an equal opportunity agency that provides services, facilities and employment opportunities without regard to race, color, religion, age, sex, physical handicap, national origin, ancestry, marital status or political beliefs."

The following tribute to John was composed by Joe Hickey of DEP's Parks and Recreation Bureau:

The Celtic bard with his
sweet tongue could charm
the birds down from the
trees.

A modern Celtic bard,
John used his pen and
not his tongue.

Yet still his way with
words did charm us all.

And we shall miss him
-- scholar, bard, and
gentleman.

Marine Education Institute

Project Oceanology will be holding its annual Summer Institute in Marine Education for Teachers from July 30 to August 22. Subjects will include oceanography, water pollution, and coastal ecology.

Classes will be conducted on the Envirolab, a 50-foot research vessel, and in a waterfront marine laboratory using oceanographic equipment. Teachers will learn how to incorporate the study of the ocean environment into their curricula.

All elementary and secondary teachers are eligible to participate in the program. There are no prerequisites. Six graduate credits will be given through Eastern Connecticut State University. Tuition is $420; camping and dormitory facilities are available nearby. For more information please contact Dr. Mickey Weiss, Project Oceanology, Avery Point, Groton, CT 06340. ■

Save that swamp!

10 years of wetlands protection in Connecticut

By Doug Cooper, Chief,
Inland Wetlands Section, Water Resources Unit

Illustrations by Chris Lewis

Statewide regulation of activities affecting freshwater wetlands in Connecticut marks its tenth year in 1984. Although enabling legislation for the Wetland Act passed the General Assembly in 1972, the law was not implemented until early in 1974. Connecticut's Inland Wetlands and Watercourses Act (Connecticut General Statutes Sections 22a-36 through 22a-45) was the result of the recognition of the important role that wetland areas play in the maintenance of water quality, mitigation of flooding events, provision of fisheries, waterfowl and wildlife habitat and contribution to educational, scientific, and aesthetic values on our landscape.

Connecticut's wetland program is unique. Inland wetlands are defined by the soil types which are designated poorly drained, very poorly drained, or floodplain and alluvial by the National Cooperative Soils Survey of the USDA Soil Conservation Service. This designation was an outgrowth of the availability of detailed soils surveys for much of the state and the commitment of the Connecticut Department of Environmental Protection (DEP) and the USDA Soil Conservation Service (SCS) to completing the mapping of the state's soils. Watercourses are those areas which may lack the above soils designations but are characterized as "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, which are contained within, flow through or border upon" the state. The dual wetland-watercourses definition provides Connecticut with one of the most comprehensive wetland regulatory laws in the nation. The state law provides for delegation of jurisdiction over wetland activities to municipalities. One-hundred and fifty-three of Connecticut's 169 towns currently administer these regulations under the guidance of DEP. Sixteen towns are directly managed by the DEP Water Resources Unit.

The DEP and SCS cooperate in maintaining current data on soil classification, providing technical assistance to municipalities and developers, fostering educational programs related to soils and wetland delineation and management for professionals and laymen, and in constantly reviewing and refining the many legal and technical issues which arise in the use of natural resource data for regulatory purposes. In this way, the state of Connecticut and its constituent towns can continue the excellent efforts toward protection of the state's wetlands by "providing an orderly process to balance the need for the economic growth of the state and the use of its land with the need to protect its environment and ecology, in order to forever guarantee to the people of the State the safety of such natural resources for their benefit and enjoyment and for the benefit and enjoyment of generations yet unborn." (Connecticut General Statutes Section 22a-36.)

Today, approximately 15-20 percent of Connecticut's acreage is classified as wetland. Increased public awareness of the vital role these wetlands perform in protecting our welfare led to the passage of the Inland Wetlands and Watercourses Act by the Connecticut General Assembly in 1972. As stated in the preface to this law, "The inland wetlands and watercourses of the state of Connecticut are an indispensible and irreplaceable but fragile natural resource. It is, therefore, the purpose of ... (this act) to protect the citizens of the state by making provisions for the protection, preservation, maintenance and use of the inland wetlands and watercourses."

Some activities may occur within wetland boundaries without permits. These include certain farming activities; gardening; field nurseries; anchorage or mooring of boats; and any recreation or maintenance of a residential property. Also permitted are conservation practices for soil, water, fish, vegetation or wildlife and outdoor recreation. Activities that must be regulated by the local inland wetland agency, or in its absence, the state, include excavation of or deposition in a wetland or watercourse, or any obstruction, alteration, or pollution within a watercourse or wetland.

All Connecticut wetlands are classified by the presence of either poorly or very poorly drained or floodplain soils. By examining a poorly drained profile, one can see the effect of a high water table. In the lower horizons, the subsoil color is washed out and appears light grey, due to a soil process known as gleization. Just above this area, bright red and brown stains may appear against the darker background. This variegated color pattern is called mottling and forms because of the fluctuating water level's effect on the chemical and biological processes. The more poorly drained the soils, the closer to the surface this mottling occurs.

All soils have some organic matter in them, but organic soils are dominated by the remains of plants and animals throughout their profile. Organic soils, peat and muck are considered wetland soil types. Peat is composed of slightly or non-decayed organic materials, whereas muck is markedly decomposed, to the point where no stems or leaves can be seen in the soil and there is a greater mineral content.

Periodically, streams overflow their banks. The sediment suspended in the water (sands, silts, and clays) settles out forming floodplain soils. These young mineral soils have little profile development. Floodplain soil types exhibit a full range of drainage classes from well drained to poorly drained. Wetland areas make poor building sites. Buildings may require special foundations and septic systems. Often the need arises for these areas to tie into municipal sewerage systems at an increased cost to the town and additional damages to the wetland by the disturbances.

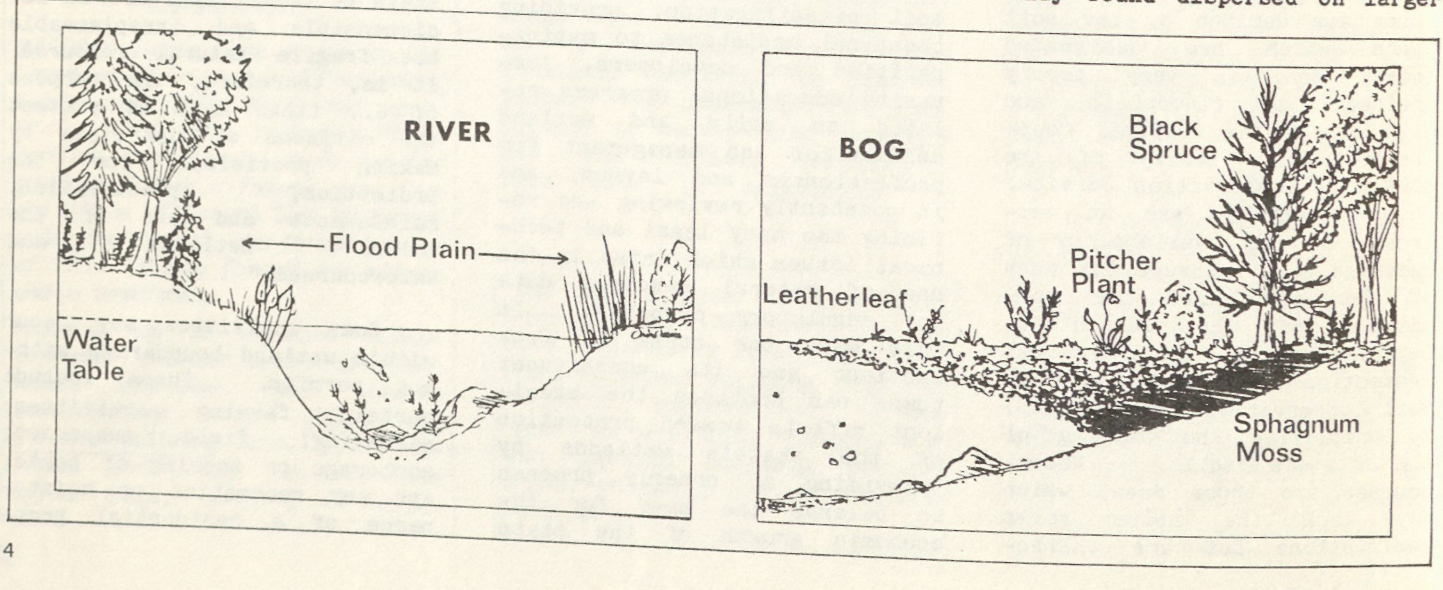
Watercourses are rivers, streams, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, that flow through or are contained within the state. Floodplains are lowland areas naturally found along some of the state's watercourses. The vegetation cover in floodplains varies.

Marshes are low-lying areas which have a high water table. One will notice an absence of trees and shrubs. The dominant vegetation is soft-stemmed plants such as cattails, spatterdock, and pickerelweed. In Connecticut, many towns also have tidal and coastal marshes, subject to tidal action. These wetlands are important sources of nutrients for aquatic organisms and are protected by state statute. The Commissioner of the Department of Environmental Protection has jurisdiction over activities in tidal wetlands. Swamps, unlike marshes, are dominated by woody vegetation; also present are the soft-stemmed plants such as the tussock sedge that form a bottom layer to the swamp.

Most bogs have formed in glacial kettleholes. The water stagnates in these depressions forming an acidic environment where unique vegetation will grow. Probably the most characteristic plant is sphagnum or peat moss. The moss forms mats along the surface with new layers growing on top of the old to depths of 20-40 feet.

On top of this mat are trees such as the larch. Two insect eating plants, sundew and pitcher plant, are commonly dispersed throughout the bog along with rare orchids and wildflowers. Within this environment, underlying deposits may be preserved for thousands of years providing scientists with information on past climates and geologic events.

Swamps and marshes are usually found dispersed on larger



floodplains. Willow often grows along a river's edge with the cottonwood and silver maple in a zone behind it. The areas designated as floodplains are subject to periodic flooding, usually during fall and spring when seasonal precipitation is higher. Engineers speak of a theoretical 10-year, 50-year, 100- and 500-year flood, with the severity of flooding increasing with the lowered frequency. Sites located within the 100-year flood zone should not be built upon. Consideration must be given to avoid costly destruction from flooding of these areas. Floodplains make very fertile farmlands that have been used since colonial time to produce crops such as corn, pumpkins, squash, beans, peas and tobacco, the latter an important cash crop in Connecticut.

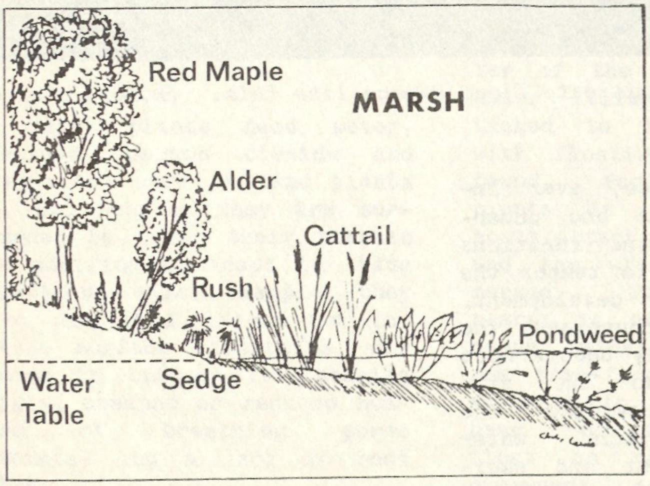
Activity within wetland and watercourse boundaries needs to be prudently regulated. Wetlands contribute a great deal to maintaining the environmental quality of the surrounding area. They do this through flood storage and control, pollution filtration, biological productivity including wildlife habitats, and providing open space for recreation and education.

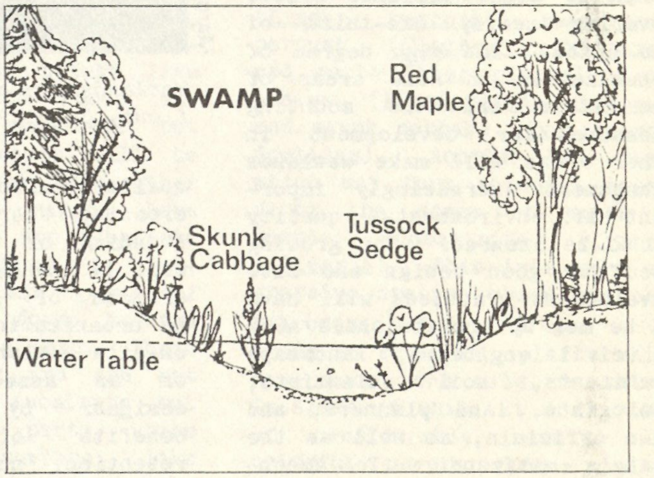
One of the major functions of a wetland in protecting the adjacent area is flood control. This is increasingly significant as more land is developed. Such development increases the amount and velocity of the surface runoff causing increased erosion and possible flooding downstream. Wetlands can minimize the damage to downstream property owners by decreasing the velocity of the water and acting as a storage basin. When a stream overflows its banks it spreads horizontally into a surrounding wetland where the vegetation acts as numerous tiny barriers temporarily detaining the water.

Engineers anticipating flooding problems often design systems to lessen the effects on structures downstream. However, if wetlands are preserved in critical valley sites, they could continue to act as flood storage for this section of the watershed. Along with controlling flood waters, wetlands also serve to maintain water quality. Wetlands have a "self-cleaning" ability which, if not overtaxed, can filter or take up pollutants from runoff before it enters the adjoining watercourse. A wetland acts as a buffer zone to trap sediments from naturally eroding areas. However, increased development along the watercourse will hinder a wetland's capability to trap the sediments unless special measures are taken to decrease the sediment runoff.

A wetland can also biologically break down some pollutants that flow through it. In a study on the effect of discharged effluent on a neighboring wet meadow, there was a marked annual decrease in the B.O.D. (biological oxygen demand), the nitrogen containing compounds and the phosphorous containing compounds. The vegetation, as well as the sediments, helped to retain these nutrients during the growing season, releasing them during a period when it would be less harmful to the environment. Although a wetland does have a limited ability to cleanse the water flowing through it, it should not be considered a substitute for good water pollution control devices or proper land use practices.

Wetlands provide important wildlife habitat. The number of species of animals which use the wetland and their population size is difficult to determine since some animals don't spend their entire life in the wetland. A wetland offers an important breeding area for a large number of animals because of the diversity of vegetation offering a food and water source and necessary nest protection. Because of these supporting criteria, wetland evaluation must be made on a case by case basis. Areas adjacent to the wetlands can affect their use by wildlife. Wetlands bordering on agricultural or open land offer more types of nesting sites, increasing use by upland species and reducing the disturbance of man's activity on the wildlife.

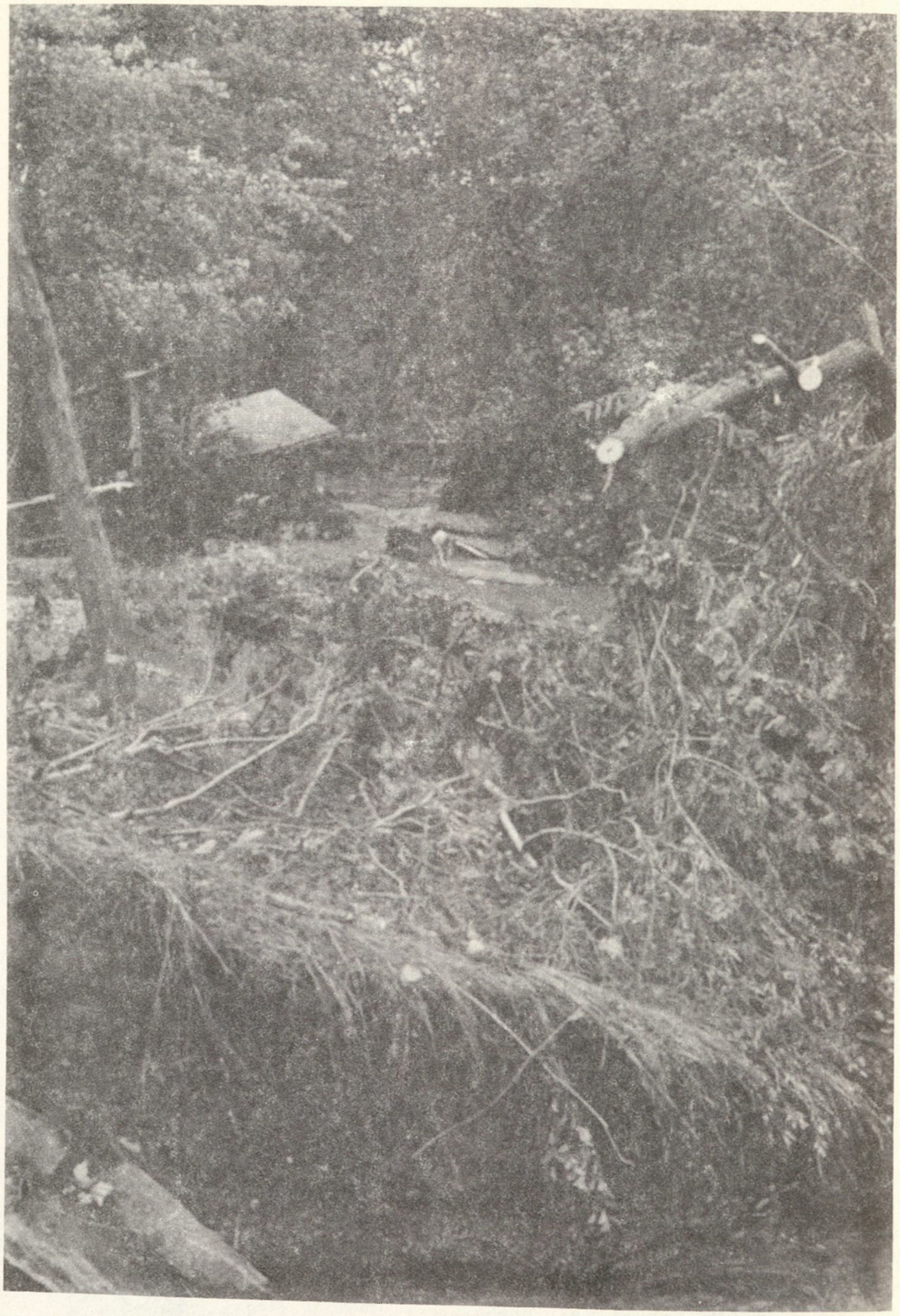




In addition, all wetlands function in providing an important source of food for wildlife and thus contribute significantly to the food web. Algae and small animals supply the food for the larger animals that visit or nest there. Man directly benefits by eating whatever he hunts and fishes.

The DEP Inland Wetland Program staff has expertise in the fields of engineering, the soil sciences, biology (wildlife & floral), geology and hydrology. The responsibilities of this Unit range from the evaluation and processing of permit applications from the 16 state-regulated towns and state agencies to providing information and technical assistance to all Connecticut municipalities. The Inland Wetland Program maintains records of state-wide wetland activities, legislation, court cases, and the most current scientific data on wetland values and management techniques. Liaison with all Connecticut municipal agencies is considered an important function.

The goal of the Connecticut Inland Wetland Program is to maintain and improve the state's water-related environment by encouraging proper land use practices where wetlands and watercourses are affected. The potential for resource and land use conflicts is great. Approximately 500,000 acres of inland wetlands and 17,000 acres of tidal wetlands exist, covering nearly one-third of the state. The high degree of urbanization in some areas of the state and the mounting pressure for development in other areas will make wetlands management increasingly important if environmental quality is to be insured. The growing need for good design and site development practices will have to be met by professionals such as civil engineers, landscape architects, soil scientists, ecologists, land planners, and town officials, as well as the state's citizens. To accomplish the goal of environmental quality maintenance, ever increasing awareness and understanding of wetland functions will be required to temper the effects of land development. As urbanization progresses, the on-site wetland may become more of an asset to the site designer by providing the benefits of storm water retention, nutrient and sediment removal, and aesthetics. ■



Margot Callahan

Wetlands can help mitigate flood damage like this. (Essex, Connecticut, June 1982)

Trailside Botanizing

Plants of the wetlands

By Winston Carter

Illustrations by Rosemary Gutbrod

A fresh-water pond has its own plant community consisting of many different species. These include both the land plants which may surround the pond and the aquatic plants which grow in the water. The land plants may be woody or non-woody; although they thrive in a wetland environment, however, they do not have special adaptations for actually living in the water.

The aquatic plants which live in the water are a study in contrast to land plants. Everything about the way they function is the result of special structural adaptations which enable them to survive in a watery environment.

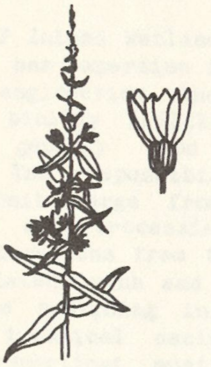
Water plants need water, minerals, carbon dioxide and oxygen the same as land plants do, but because they are surrounded by water their tissues are modified to adapt to these conditions. For example, they have dissected leaves to increase surface absorption, air spaces in tissues for storing oxygen, absence or reduced numbers of breathing pores (stomata) and a lack of root hairs.

No two ponds will have exactly the same type of vegetation. It will vary from one pond to another, but in spite of this there will be much vegetation which will be similar. Ponds tend to have distinct vegetative zones, particularly as they age and fill in. These often include the land plants which are growing along the shore and different zones of aquatic plants which may grow inward toward the center of the pond.

The aquatic plants of the first zone are called emergents. These rooted plants have a portion of the stem which extends above the water, like cattails. Farther out, between the shore and the center of the pond, plants like water lilies with roots attached to the substrate but with floating leaves will be found. Pond weeds and other plants in this region have roots attached to the substrate and the whole plant is submerged. The last group of plants is often found in the deeper waters of a pond. These are free-floating and are not attached to the substrate but have vegetative parts which float on the surface, like duckweeds, and the free submerged plants like bladderworts. The latter plant has its vegetative parts submerged but its flower and stalk extend above the water.

Let's take a closer look at the way some specific water-loving plants may be distributed in and around a pond. This distribution will, of course, be an over-simplification because the vegetative zones may be more distinct in one pond than another. Some plants occasionally appear in more than one zone.

Some land plants which grow well around ponds are spicebush (Lindera benzoin), sweet pepperbush (Clethra alnifolia), red maple (Acer rubrum), swamp azalea (Rododendron viscosum) and skunk cabbage (Symplocarpus foetidus). Another land plant which may form colonial masses along the edges of ponds is purple loosestrife (Lythrus salicaria). This is a very aggressive species which has been introduced from Europe. It tends to crowd out plants which have much more wildlife value. In spite of this, it is a plant of considerable beauty. Its colorful purple flower spikes extend upward sometimes as much as five feet. Each flower is a study in itself with petals varying from four to six in number and having three types of stamens and pistils of varying length. This is to ensure cross pollination. Historically, the leaves were used by Indians as a medicine for treating chronic diarrhea and when food was scarce as emergency rations.



Purple Loosestrife
(Lythrum salicaria)

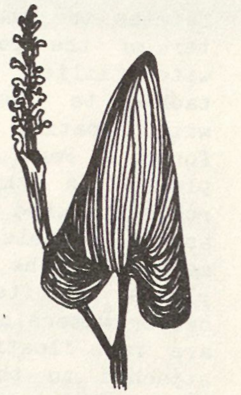
A well-known rooted emergent plant which may grow along the edge of margins is the common cattail (*Typhus latifolia*). It also grows in wet meadows and other wetland sites, often serving as an indicator of an area that has been disturbed by human activities. In many places, *Typha* has been replaced by tall reed grass (*Phragmites australis*). This plant may be eye catching but it has little value to wildlife.

The common cattail may grow to a height of as much as seven feet. It has rigid upright leaves and the most conspicuous feature is its flower with its well-known cylindrical spike. This is made up of two portions: the upper part consisting of the male (staminate) flowers, and the lower section, the female (pistillate) flowers. The pistillate flower persists and becomes the fruit which contains thousands of tiny, hairy wind-transported seeds.

Broad-Leaved Cattail
(Typha latifolia)

Cattails provide excellent cover for nesting waterfowl and a number of songbirds, such as marsh wrens and red-winged blackbirds. It offers little in the way of food for most waterfowl but the stems and rootstalks are eaten by muskrats who also use the stalks to build their houses. Man uses the common cattail in many ways. The sprouts at the top of the rootstalk are sometimes eaten as greens or in salads. The leaves have been utilized for making rush-bottom furniture and the fluffy fruit has been used as insulation in blankets. At one time, paper was made from cattails. Today, man is again experimenting with this practice.

Another rooted emergent plant is pickerelweed. It is often found along the edge of a pond growing in shallow water, but it will grow successfully in water up to three feet in depth. The flower of pickerelweed is a colorful purplish-blue spike which, like the purple loosestrife, has stamens and pistils of different length to ensure cross-pollination. It blooms from July to September. The leaves of pickerelweed are usually somewhat heart shaped but may vary in appearance. They are supported by long stalks (petioles).



Pickerelweed
(Pontederia cordata)

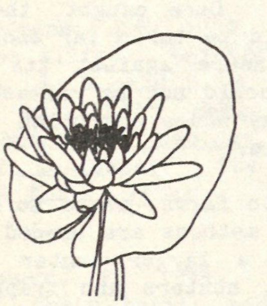
There is often an abundance of aquatic animals in and around this plant. A common game fish, the pickerel, is frequently found here, giving the plant its name. Despite the fact that pickerelweed is a common aquatic plant, its value to wildlife appears to be limited. The seeds are eaten by black and wood ducks and muskrats, while deer may browse on the leaves. The seeds can be eaten like nuts. The Indians roasted them and added them to cereals and breads. They also ground them up and used them as flour.

Arrow Arum
(Peltandra virginica)

The third rooted emergent is arrow arum (*Peltandra virginica*), which is usually found on the margin of ponds and streams in shallow water. It prefers muddy soil. This emergent has leaves that are usually arrow shaped and because of this it is sometimes confused with arrowhead, another emergent which may grow in the same habitat. One of the big differences between these two plants is the flower. Arrow arum has a flower which is similar to that of skunk cabbage and Jack-in-the-pulpit. It consists of a green sheath-like spathe and a white finger-like spadix. This structure contains both male and female flowers -- female at the bottom and male at the top. Arrowhead has flowers that are white, and they rise above the plant in whorls.

The fruits of arrow arum are green berries with one to three seeds. They are a favorite food of wood ducks and are occasionally eaten by other birds, but the animal life found around the plant probably has more value as food for ducks than the berries. Indians used the root as a source of food but it had to be cooked first to break down the crystals of calcium oxalate which made the plant poisonous if eaten raw.

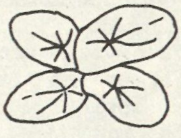
Farther into the pond we may find water lilies which, as mentioned earlier, are plants with attached roots but with floating leaves. There are several species, both yellow and white, that are found in our area, but none are more attractive than the fragrant white water lily (Nymphaea odorata). It has round floating leaves which are purple underneath; its three- to five-inch flower is usually white, but may also be pink, and is extremely fragrant. A very similar species is the tuberous white water lily (Nymphaea tuberosa). It has leaves which are green underneath and the flower is not fragrant. The flowers of both species open early in the morning and usually start to close by mid-afternoon. On cloudy days the flowers do not open. This probably helps to protect the pollen against rain.



Fragrant Water lily
(Nymphaea odorata)

The fragrant white water lily will grow in water which is as much as 10 feet deep if the water is clear. It usually grows in ponds and slow streams where the water level doesn't change. Mats of these lilies sometimes crowd out other species which may be more valuable to wildlife. It has considerable value as an ornamental throughout the world, but it has limited value for wildlife. The young leaves may be eaten by fish, birds and muskrats and the seeds are eaten by ducks and other waterfowl to a limited degree.

Another group of plants with floating leaves is the duckweed, which is a true floating plant. Unlike water lilies, duckweed roots are not attached to the soil but must obtain their nutrients directly from the water. These tiny plants form a green covering over ponds and other quiet waters. The most abundant species is common duckweed (Lemna minor). It often grows in association with big duckweed (Spirodela polyrhiza) and water meal (Wolffia). The latter is the smallest of all flowering plants and is granular in appearance. These plants have flowers that are microscopic and blooming is quite rare. Most reproduction occurs by vegetative division, this being the major method of reproduction in most aquatic plants, even though they may produce flowers.



Duckweed
(Lemna minor)

All species of duckweed are very valuable food for wildlife, and common duckweed makes up about nine-tenths of their diet. Duckweed has a high nutritive value which exceeds that of most agricultural plants. For this reason, it may someday play a significant role in the diet of peoples living in the tropics and subtropics because its growth there is so profuse.

Another plant often found in deeper water is the common bladderwort (Utricularis vulgaris). It is a freely submerged plant which is carnivorous. It is often overlooked because all parts of the plant are submerged, except its yellow snapdragon-like flower, which extends above the surface of the water and blooms from June to August.

This species of bladderwort is found growing in quiet waters that are either shallow or deep. It lacks roots but has a branching stem from which arise many whorls of tiny green, sometimes divided, branches bearing numerous tiny bladders. These are actually modified leaves. They help to anchor the plant and serve as traps to catch small aquatic animals which are then digested to aid in nourishing the plant. Each bladder is equipped with tiny, branched hairs around the opening to the trap which is sprung when small organisms disturb these hairs. The trap can be reset to capture more prey in about twenty minutes. The bladders vary in size. Some of the larger ones are able to catch organisms such as fish fry, water fleas and mosquito larvae, and sometimes even small aquatic plants such as duckweed (Lemna) and water meal (Wolffia).

We have had a look at only a few of the many plants found in and around a pond. A study of their distinctive adaptations, some of which we have been introduced to already, has a special appeal that I hope will arouse your interest in further exploration. ■

Connecticut's raccoons unmasked

Wildlife Bureau Informational Series

Description

The raccoon (Procyon lotor) is the only member of the family Procyonidae found in New England. Raccoons are most closely related to the dog (Canidae) and bear (Ursidae) families. Characteristic features include short pointed ears, a long pointed snout, and grayish-brown fur covering the body. The raccoon's most distinguishing features are the black "mask" around the eyes and the black "rings" around the long, bushy tail.

A raccoon may be two to three feet long and weigh between 10 and 30 pounds. Raccoons are excellent climbers and have quite dexterous paws. They are primarily nocturnal creatures but occasionally venture out in the daytime. During the fall and winter months (November to March) raccoons may "den-up" for the coldest periods; this is not true hibernation and the raccoons will wander out during warm spells.

Distribution and Habitat

Raccoons are common throughout Connecticut and the other eastern United States. They inhabit a wide range of habitats but are most common in mature woodlands along streams, ponds, and marshes. Raccoons are adaptable to man-made changes in their habitats and sometimes live in close proximity to human developments. They may feed persistently on garbage and crops such as corn. Raccoons are omnivorous, eating just about anything they come across including frogs, crayfish, bird eggs, acorns, and wild berries.

Reproduction

Raccoons are promiscuous and breed in late winter or early spring. The gestation period for the raccoon is 63 days. Females produce one litter per year with an average of four young per litter. The young are born in a sheltered den, usually a hollow log or a rock crevice. They leave the den to travel with the mother after 50 to 60 days.

Economics

The raccoon is an important furbearer in Connecticut due to its abundance and pelt value. Raccoons are harvested each year during the regulated hunting and trapping seasons. They provide a source of recreation and income to many Connecticut sportsmen. To many nonconsumptive users raccoons are appreciated for their aesthetic value; they just enjoy observing them.

However, because of their ability to tolerate humans, raccoons can become a nuisance in areas where they damage gardens and raid garbage cans. They can be especially destructive on farms where they feed heavily on crops.

Raccoons may serve as host to a number of diseases which are transmissible to humans and domestic animals. These include rabies, trichinosis, tuberculosis, canine distemper, infectious enteritis, and coccidiosis.

Management of Nuisances

Raccoons that are a nuisance around the home can be easily live-trapped using a Havahart or similar live animal trap which can be purchased from many hardware stores. The trap should be baited with apples, dog food, oatmeal and honey, or any other aromatic bait. Once caught, the animal should be taken far enough away to insure against its return; it should not be released where it may cause a problem to other people.

On farms, where more effective methods are needed to control a larger number of animals, hunters and trappers can harvest nuisance animals on the property during the regulated hunting and trapping seasons.

To deter raccoons from raiding garbage cans, there are several modifications which can be made to "raccoon proof" the can. This can be accomplished by attaching snaps to the lid and securing the handle of the can to a stake driven into the ground. Placing cans in wooden bins or in the garage may also discourage raccoon nuisance problems.

A trellis, rain spouting, vines, shrubs, or trees near the house may provide an easy access to the roof for these agile climbers. Therefore, efforts should be made to restrict entrance to the house itself, especially if raccoons are prevalent in the area. Replace loose shingles, repair any holes near the eaves of the roof, and place a heavy mesh wire over the chimney. Limiting the access to the roof may also be helpful, if feasible.

Predation by raccoons on wood ducks nesting in boxes may be avoided by surrounding the entrance hole and facing of the box with sheet metal.

Electric fences may help to keep raccoons out of gardens. Just remember to keep the wires spaced close together and close to the ground in order to make them effective.

Further Reading

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Irene Vandermolen

Raccoons in den tree.

Pick a proper pesticide

By Susan Subak, Environmental Intern

Before hunting for the right exterminator or pesticide for your house or garden problem, you should decide whether the damage or nuisance is serious enough to require special measures. Perhaps a change in weather or sanitary habits or caulking or habitat management will do the trick -- if not you might resort to using pesticides.

Pesticides, however, are spot cures at best and dangerous ones at that. Pesticides vary in their toxicity to man and insect, but 1/70th of a teaspoonful of some pesticides, when ingested, is sufficient to kill an average-sized individual. Vapors and residues may be harmful to the general population, especially to the very young or old. Moreover, the pesticide may be rendered ineffective over time as the targets develop resistance to the substance. More importantly, pesticides may aggravate the pest problem by eradicating the pest's natural predators and thus making a long-term solution less likely.

Your first task is to identify the pest. The Agricultural Experiment Station in New Haven and Windsor, state entomologists at the University of Connecticut, and the Connecticut Co-operative Extension Service can help you. Often they will accept samples of the insect in question through the mail.

You have several options in controlling house and garden pests:

TRAPS: Traps are available for flies, ants, mosquitoes, moths, cockroaches, mice, and other vertebrates at hardware stores, plant nurseries, or from pest control operators. Many newer traps contain insect attractants.

BARRIERS: Use mechanical barriers, such as window screens and sticky substances. For example, Stickem, Tanglefoot, or petroleum jelly applied to the lower portions of the plant or tree will entrap species that can crawl from ground to leaves. (Do not apply these directly to the tree. Put them on a cloth or foil strip).

ELECTRIC BUGKILLERS: Bugs are attracted by a fluorescent black light into an electrically charged grid where they are electrocuted. They attract insects from a minimum of 80 feet, and clear approximately 3/4 acre, and cost upwards of $100.00

If your objective is to make the habitat unsuitable for pests, this may be accomplished in a number of ways. For instance, mulching can reduce problems with earwigs as well as discouraging the growth of weeds. You may dry the habitat by thinning plants that are visited by snails, removing any damp boards, and using ground cover that retains less moisture. While you want to make the habitat unsuitable for pests, you should make the habitat as hospatible as possible for the enemies of the pests. Provide the correct habitat for pest-eaters, such as birdhouses for insectivorous birds and plants that provide shelter for natural enemies of insect pests.

Do not hesitate to attack the problem directly; shake the pests from the plants, hand pick them, or wash them off with water. Most species are vulnerable to physical controls when they are in the pupae stage, because the cocoons can be discovered and destroyed.

If you resort to chemical or biological controls bear in mind that the more selective the material, the less likely it is that it may harm other helpful species. Bacillus thuringiensis, or B.t., for example, kills certain caterpillars, but not their enemies. Bacterial pesticides must be applied at the right time. For instance, B.t. should be applied early in the caterpillar's growth cycle because it has better results on younger caterpillars when the gut is alkaline and the toxin can dissolve the stomach wall. Generally, pests are more vulnerable to insecticides when they are crawling around in the larvae stage, for in the cocoon stage they are better protected, and in the adult stage they are higher off the ground, and less vulnerable to environmental changes.

Biological insecticides may be less convenient than some chemicals because timing is crucial, but biological insecticides localize the eradication and present little danger to humans and other animals. The pesticide should be applied to the smallest possible area for the shortest possible time. A bait is usually more desirable than a spray, because there is less danger of exposure. But a spray is preferable to a dust because it is less likely to drift. The safer chemicals include silica gels and botanical insecticides, which are made from plants such as pyrethrum. Avoid using hanging strips of material, as they emit pesticide into the environment even when pests are not present.

WHEN APPLYING PESTICIDES YOURSELF: Choose the correct insecticide for your needs; they have become much more species specific. Wear gloves and protective covering. Avoid using pesticides indoors, especially in kitchen areas. Never apply to any surface that may come into contact with food.

WHEN HIRING PROFESSIONAL HELP: Contact at least two or three pest-control firms. Find out whether each firm is a member of the Connecticut Pest Control Association or if it has a certified applicator's license. (All commercial applicators must be certified.) This information is available from the Pesticide Unit of DEP. You may also want to check the reputation of the companies with the County Extension Office, the Chamber of Commerce, the Better Business Bureau, or the Connecticut Pest Control Association. Ask the pesticide company for a written statement of the proposed work and an estimate of the costs. Generic names of chemicals should be used, not just trade names. Have pesticide toxicities, dosages, and formulations written out. Make sure your obligations and a guarantee appear in writing; the company may suggest that you improve sanitation measures. Watch out for firms that claim to be endorsed by a state college. State colleges and universities do not endorse pest-control firms. Report any spills, lapses in use of safety equipment, damage to your property, or failure to meet written agreement to the DEP.

WHEN TREES IN YOUR AREA ARE SPRAYED TO CONTROL GYPSY MOTHS: Close all windows and doors on your house, outbuildings and car. Move your car out of range of the spray. Hose it off promptly if spray hits it. Keep everybody, including children and pets, indoors during the spraying and for about two hours afterward. Take in any wash on the line before spraying begins. Wipe the line with a damp cloth before you hang clothes again. If spray from somebody else's yard blows onto your wash, don't wear the clothing until you re-wash it. Cover porch and yard furniture or put it outdoors. Wash the spray off any outdoor objects that are touched frequently. If spray falls on fruits and vegetables, find out the name of the insecticide by calling the owner of the spray company. Also ask how long to wait before eating them. If he does not know, phone 566-5148, the Pesticide Control Section of DEP. Cover wells and poultry runs and keep farm animals out of range of the spray.

WHEN YOU DO YOUR OWN SPRAYING: Follow the instructions and warnings on the packages of chemicals exactly. Do everything the instructions recommend and don't do anything they don't recommend. Do not use more of the chemicals than the instructions call for. Wear rubber gloves and footwear that can be hosed clean. Safety goggles and a mask over your nose and mouth will add to your safety. Make sure the wind is at your back when you spray. Do not spray when it is blowing toward your face or from either side because it is too easy to inhale it. Do not spray in high wind because you cannot control the stream. If the wind shifts and blows spray onto your skin, wash it off immediately. There must be a check valve or anti-siphoning device on all hoses used to draw water from a water supply if a reversal of flow would cause any pesticide to enter into a hose. The discharge side of a pump should not be connected to any water system. Do not draw water for pesticide application from any stream or pond leading to a potable water supply reservoir. If your sprayer is the kind that fastens onto your garden hose, wash the hose thoroughly for its entire length when you finish. Also wash the spray gun thoroughly. Wear old clothes that can be washed when you finish. Discard empty chemical packages safely, and either discard or thoroughly wash measuring cups, etc. Take a shower when you finish.

NOTE THE FOLLOWING GENERAL RULES FOR HOUSEHOLD PESTS:

* Don't leave food or wastes uncovered.

* Use tightly fitting garbage can lids and tie-downs to prevent wind, dogs or other animals from scattering contents.

* Repair dripping faucets and leaky pipes.

* Clean clogged gutters and provide drainage, especially near buildings.
* Caulk or weatherstrip any openings on the exterior of the house.
* Use well-fitted screens.
* Store woodpiles away from the house and off the ground. Pack the wood tightly so there will be no hiding spaces for rodents.
* If there is condensation on pipes, insulate the pipes or provide ventilation.

A BRIEF LIST OF TACTICS FOR SPECIFIC HOUSEHOLD PESTS:

RATS: The only permanent solution is to cut off the food supply and clean up and eliminate the places they nest and hide. Rodents carry parasites and other disease-carrying agents, so wear gloves when disposing of them.

COCKROACHES: Fill cracks around shelves, cupboards, sinks, and bathtubs with putty, caulking compound, or paint. Get rid of old newspapers and dripping water. Apply boric acid powder to any spots inaccessible to children or animals. Boric acid is a toxic substance. Care should be used when applying it.

ANTS: Do not use poisons in the areas where food is eaten because ants can track poison around. Store foods in tight glass, metal or plastic containers. Ant traps are useful, but place them out of reach of small children. Replace traps when the material in them is used up.

TERMITES: Guard against termites, as well as other pests, by eliminating damp areas. You may be able to get rid of small infestations by physically destroying the nest and replacing the damaged wood. For chemical treatment, hire a professional.

FLEAS: Vacuum extensively, bathe your pet, use a flea comb (especially on cats), hand pick any insects that you find. You may use a flea collar, but avoid collars containing dichlorvos. Remove the collars as soon as the animal stops scratching.

TACTICS FOR GETTING RID OF GARDEN PESTS:

CATERPILLARS: Avoid killing the larvae of such predatory insects as the hover fly and lacewing because they may help to kill caterpillars,

CODLING MOTHS AND CHERRY FRUITWORMS: Trap them by wrapping the trunk and large branches of fruit trees with strips of cloth; they should spin cocoons on the cloth. The strips should be removed and destroyed after they have trapped cocoons.

JAPANESE BEETLES: Beetles may be picked off plants and killed. Another possibility is the use of pheremone, or sex-lure traps.

MEALY BUGS or SCALES: Apply alcohol or oil directly to the colonies with a small paintbrush. (On houseplants only.)

APHIDS: Aphids are small, soft-bodied insects that suck the juices of plants. Spray the bugs with your garden hose. Apply plain soap and water to your houseplants: one pound of soap to five gallons of water. Garlic, chives, petunias, and nasturtuims repel aphids. Some gardeners are successful in trapping aphids in yellow plastic dishpans filled with water and a small amount of detergent.

SLUGS: Place a shallow container of beer below ground level near the pest site. The slugs should drown in the liquid. You can also place a board or shingle out on the ground; the slugs will congregate there during the heat of the day and you can destroy them.

CABBAGE WORMS: Tansy, rosemary and tomato help in repelling them, as do salt and flour dusted directly on the plants.

TOMATO HORNWORM: These are bright green with a diagonal white stripe on the sides and a protrusion that grows up to four inches long on the back end They attack potatoes, tomatoes, tobacco, eggplant, and peppers. Handpick the larvae, unless their backs are infested with small white cocoons. These are wasps which prey on their hosts.

COLORADO POTATO BEETLE: The adult is yellow. Black lines run lengthwise down its wing covers. The larva is a small red grub with two rows of black dots along each side. They chiefly eat potatoes but will attack peppers, eggplant, and tomatoes. Repellent plants include garlic, marigold, horse radish, and green beans. These insects are extremely resistant to most means of control.

MEXICAN BEAN BEETLE: The adult resembles other "lady bugs." The larva is a yellow fuzzy-haired worm covered with spines. They eat a variety of beans. Interplanting with savory, nasturtium, or garlic may help fend off the pests. A spray made with turnips and corn oil has helped some gardeners.

SQUASH VINE BORER: The borer is a one-inch long caterpillar with a brown head and brownish legs. The adult moth has clear wings and an orange and black abdomen. They attack vine-like members of the gourd family. Look for sawdust-like deposits around the stems of squash plants. Remove the larvae by slitting the stems and removing them.

TACTICS FOR GETTING RID OF SMALL MAMMALS:

Erect a three-foot high fence buried six inches deep to keep out rabbits and woodchucks. To get rid of raccoons, add an electric fence eight inches above the ground along the outside edge of the fence erected for rabbits and woodchucks. Prevent mice, voles, and rabbits from debarking the trunks or removing the limbs and buds of trees by surrounding the trunks of larger trees and shrubs and seedlings with two- to three-foot high hardware cloth and a stiff one-quarter to one-half inch welded iron mesh. Tobacco or other netting over fruits and berries will decrease bird damage.

If you do want to purchase and use over-the-counter pesticides, there are some basic rules to remember. First and foremost, read the label carefully! It will list such information as chemical ingredients, directions for use, and specific cautions. Most of these products are relatively

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Sea lampreys – how bad are they?

By Steve Gephard, Fisheries Biologist, Bureau of Fisheries

In recent years, the number of sea lampreys in Connecticut has been increasing and the fish have been observed in streams from which they had previously been absent. Some anglers are disturbed by this trend. However, a review of the facts about sea lampreys reveals why there is no reason to be concerned about the expansion.

The sea lamprey (*Petromyzon marinus*) is a primitive eel-like fish native to Connecticut. Although it is commonly called a "lamprey eel," it is not an eel but belongs to its own distinct family, a group of the most primitive vertebrates on earth.

Like the shad, salmon, and alewife, the sea lamprey is anadromous, spending its juvenile years in fresh-water streams, its adult years in the ocean, and returning to the fresh-water streams to spawn. Spawning is done in shallow nest-like depressions constructed in shallow riffles of streams. All lampreys die after they spawn.

It is unclear what the exact length of the life cycle is, but it is believed that the lampreys spend five years as juveniles and two years as feeding adults in the ocean.

One of the most unique features about the lamprey is that the adults are parasitic upon other fishes. They use their sucker-like mouths to attach to the side of a large fish, rasps a hole through the side of the fish using sharp teeth, and sucks blood and body fluids from the host. While such parasitism is detrimental to the host fish, it is not always lethal.

Sea lampreys co-existed with coastal fish populations for millions of years without significant disruptions, but they had a devastating effect on native fish stocks in the Great Lakes when they colonized the lakes via the Welland Canal or Erie Canal during the 1940's. Reasons for the harmful effects include: (1) absence of natural predators and diseases of lampreys in the Great Lakes, (2) abundant, unoccupied habitat allowing rapid population expansion, and (3) a large population of prey species -- such as lake trout -- but a population much smaller than that parasitized in the Atlantic ocean. The population was large enough to be seriously affected by the attacks.

Despite the serious harm done in the Great Lakes by the lamprey and the fact that a great deal of money and effort are being spent annually to control the population in the Great Lakes, sea lampreys pose no threat to Connecticut fish populations. The reasons include: (1) since sea lampreys have been here for millions of years, nature has evolved natural predation and defense mechanisms, (2) lampreys attack fish only in salt water where the numbers of fish are so large that the lamprey's impact is negligible, (3) lampreys do not feed at all in freshwater. In fact, they are incapable of feeding -- their digestive track begins to degenerate when the fish enters fresh water. They may attach to objects using their sucker-like mouths in order to rest during their fresh-water migration but they are not feeding during that activity.

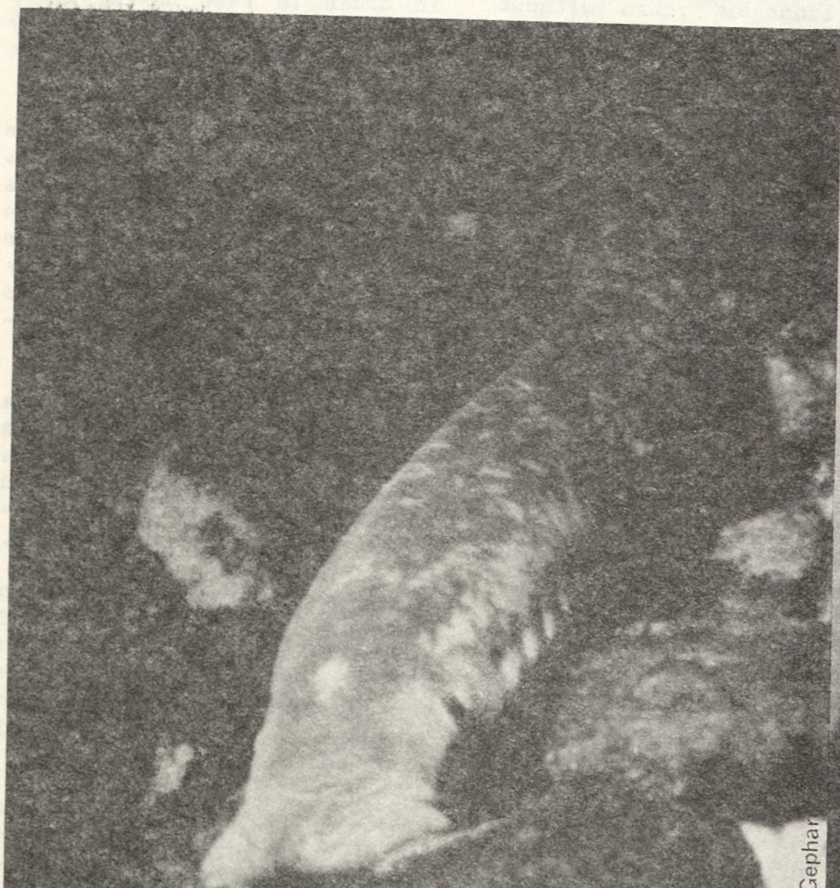
Reports of adult lampreys attacking trout in Connecticut are myths. Occasionally, a sub-adult lamprey will be seen on a shad, salmon, or sea-run trout which carries the lamprey into fresh water during its spawning run after being attacked by the lamprey at sea.

There is evidence that the presence of sea lampreys in a stream may be beneficial to the aquatic ecosystem. Insects and microorganisms feed on the lamprey carcasses and, in turn, are preyed upon by game fish. Numerous game and forage fish prey on the lamprey eggs and larvae, and many forage fish species spawn on top of the lamprey nests, which are better habitat than undisturbed streambed.

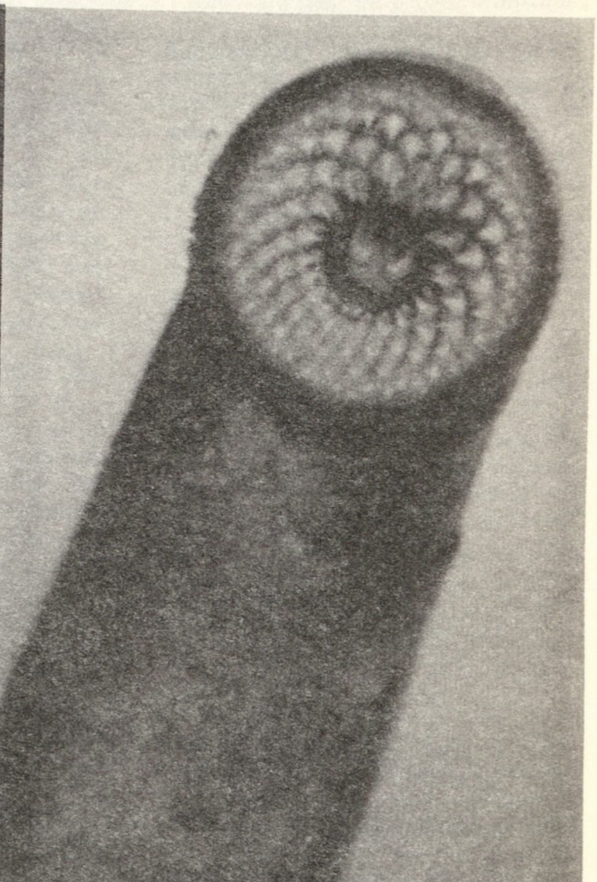
Lampreys are now being seen in stretches of streams where they have previously been absent because of the construction of fishways around dams and the destruction of dams due to recent floods. Fishways are being built around dams in the Farmington and Salmon River watersheds as part of the Atlantic salmon/American shad restoration program and along coastal streams to provide passage for alewives. Lampreys also use these fishways and now nest throughout most of the Salmon River watershed and in the Farmington River and its tributaries downstream of Collinsville. As the lampreys gain access to new spawning habitat, their numbers will dramatically increase. Seven years (the length of one lamprey generation) after the Rainbow fishway on the Farmington River was completed in 1976, the fishway counts of lampreys skyrocketed by about 1200 percent. In 1983, 3,700 lampreys were counted ascending the fishway. A similar jump in numbers is expected to occur in the Salmon River in 1987. Biologists with the DEP Marine Fisheries Unit are monitoring the expansion of the sea lamprey population in these two river systems.

Although the sea lamprey is ugly by most standards, it was esteemed for its food value by North American Indians and early American settlers and is still commonly eaten by Europeans and Scandanavians. Lampreys are commonly smoked, pickled, and boiled. There may be some European/ethnic cookbooks that include lamprey recipes. Lampreys may be taken by bow-and-arrow, hand spear, or by hand in stream stretches not stocked with trout. There is no minimum length or daily limit. No fishing of any kind is allowed in the 600 feet below the Leesville dam on the Salmon River (formerly a popular lamprey fishing site) or in the tailrace below the Rainbow dam on the Farmington River. People who wish to harvest sea lampreys should refer to the Connecticut Abstract of Hunting, Trapping, and Sport Fishing Laws and Regulations or contact the Bureau of Fisheries office, 566-2287.

People who wish only to observe lampreys as they migrate and nest should visit the Rainbow fishway (Windsor) and the Leesville fishway (East Haddam) as well as the Farmington River below the Rt. 187 bridge (Bloomfield-Granby) and the Salmon River upstream of the Comstock Covered Bridge (Colchester). They may also be seen in small local streams with direct access to Long Island Sound or the Connecticut River. The best places to look are below dams or waterfalls, where lampreys congregate. The migration lasts from late May to mid-June. Nesting in streams is best observed in mid-June on a sunny day when the water is low and clear. ■


R. Degoursey

Adult sea lamprey.


Steve Gephar

Mouth of sea lamprey showing teeth and tongue.

1983 Deer Hunting Report

Bureau of Wildlife

The final results of the 1983 deer season have been announced.

Overall, 3,791 deer were harvested, 2,191 males and 1,600 females. This is a record harvest for Connecticut and a 44 percent increase over the 1982 season. Over 76 percent of the 1983 harvest (2,911) was taken from private lands. We have reported that the highest concentrations of deer are on private lands, and this year's results seem to support that observation. We plan to use the Private Land double-tag system again in 1984. This year only 378 people filled both tags, less than two percent of the total who were eligible. We will evaluate the results of this system again after the 1984 season and apply the appropriate management techniques. Our hope is to bring the number of deer on private lands to a level reasonably compatible with other land uses and to reduce the number of deer-vehicle collisions.

Check station operators reported most deer to be healthy with adequate amounts of body fat. More deer were field-dressed in the 180 to 200 pound range this year than in the past. A fairly mild winter last year and a good mast crop in certain areas of the state also contributed to the health of the deer population.

Archers took 639 deer in 1983, 402 males and 237 females. This is an increase of 248 deer over last year despite the decline in archery permits sold in 1983. The success rate among archers was good and 87 archers were able to fill their second deer tag. Archers had the most success in the Housatonic, Nehantic, and Wyantenock State Forests. Private land archers did best in Salisbury, Redding, and East Haddam.

Muzzleloader hunters in Connecticut tagged 589 deer, 356 males and 233 females, continuing the trend of being more buck selective. Of the 1,707 muzzleloader hunters on private land, 41 were able to fill their second tag.

The shotgun season for 1983 proved best for those with private land permits. A record 1,477 deer were harvested on private land, an increase of 63 percent from 1982. Only 214 more permits were issued this year than last. Private land shotgunners were also allowed a second deer tag, 174 of which were filled. Salisbury, Sharon, and East Haddam had the highest harvests.

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1983 Trophy Deer Harvest

ARCHERY		LOCATION
Gratien Gosselin Bristol, Connecticut	240 lbs. 8 pts.	Sharon
James Bettini Torrington, Connecticut	215 lbs. 7 pts.	Housatonic State Forest
Robert Bresson Sandy Hook, Connecticut	210 lbs. 12 pts.	Newtown
MUZZLELOADER		
George Dunn Waterbury, Connecticut	198 lbs. 10 pts.	Falls Village
Edward Nolepka Barkhamsted, Connecticut	194 lbs. 8 pts.	People's State Forest
James Grenier Oakville, Connecticut	193 lbs. 9 pts.	Canaan
SHOTGUN		
John Stokes Newtown, Connecticut	203 lbs. 8 pts.	Newtown
Lee Miller Newtown, Connecticut	192 lbs. 8 pts.	Newtown
Matthew Carlson Warren, Connecticut	191 lbs. 8 pts.	Warren
Martin Hipsky Goshen, Connecticut	192 lbs. 8 pts.	Goshen

Dollars for ducks

Federal Duck Stamp program benefits more than waterfowl

One of America's most successful wildlife conservation efforts, the federal Duck Stamp program, celebrates its 50th anniversary this year. The program began in 1934 as a direct response to the serious decline in America's once plentiful duck and goose population that had been caused by commercial exploitation and the draining of millions of acres of prime waterfowl habitat to create farmland.

The plight of America's waterfowl was made worse by the historic drought that struck the nation in the 1930's.

Seeing the serious threat to the future of waterfowl, hunters and other conservationists, led by nationally known political cartoonist Jay N. "Ding" Darling, campaigned for a federal program to permanently fund acquisition of habitat for waterfowl.

The result was the 1934 Migratory Bird Hunting Stamp Act that required every waterfowl hunter, 16 years of age and older, to buy and carry a signed federal Duck Stamp. Proceeds from the sale of stamps were to be used to buy and lease habitat for waterfowl.

Duck Stamps portray a species of North American ducks, geese, or swans. The design for each year's stamp is chosen through an art contest that is entered by many of the nation's best wildlife artists. The colorful stamps have become collector's items and a complete set of unused stamps now sells for as much as $6000. Long popular among waterfowlers and stamp enthusiasts, Duck Stamps have in recent years been purchased by growing numbers of non-hunting conservationists who want to help preserve wetland habitat for wildlife.

The winner of the competition for the 1984-1985 design was William Morris of Mobile, Alabama. Morris's rendering of a pair of American widgeons was selected from 1,581 other entries. Previous winners have realized tremendous fame and fortune through the sale of limited edition prints bearing the stamp design, and Morris is expected to do the same.

Since it began, the sale of federal Duck Stamps has raised over $285 million and helped purchase over 3.5 million acres of prime waterfowl habitat. Over 400 National Wildlife Refuges located in 49 states provide waterfowl with nesting grounds, staging areas, sheltered resting stops and secure wintering areas. Almost half of these have been bought in whole or in part with Duck Stamp revenues.

The marshes, wetlands and other areas that make up National Wildlife Refuges not only provide prime habitat for waterfowl, they are vital to hundreds of other species, protecting and ensuring a healthy future for a variety of species that are endangered, such as the bald eagle, whooping crane and the peregrine falcon.

The hundreds of unendangered species ranging from chipmunks and songbirds to deer and wild turkey also directly benefit from the National Wildlife Refuge system and other habitat conservation programs paid for by sportsmen's dollars.

The coastal and inland marshes that are part of many wildlife refuges provide the first link in the food chains and the spawning grounds for both saltwater and freshwater fish.

While most Duck Stamps have historically been purchased by hunters, a major campaign is now under way to encourage more non-hunters to support the program.. Duck Stamps are available from most post offices, many National Wildlife Reguges or by mail from the U.S. Postal Service, Philatelic Sales Division, Washington, DC 20265-9997. Include $7.50 for the "Duck Stamp" and 50 cents for postage and handling.

"In short," said one U.S. Fish and Wildlife Service official, "what's good for ducks is good for all wildlife." ■

50th Anniversary
SAVE WETLANDS FOR WILDLIFE
Buy DUCK STAMPS
At most Post Offices and National Wildlife Refuges

Rebuilding your home after a flood

By Diane Giampa, Public Participation Coordinator

If you live in a flood-prone coastal area, how are you protected in case your home is destroyed or damaged by a storm? What exactly is the National Flood Insurance Program and how does it enable you to rebuild your home, taking some necessary precautions so that it is less likely to be damaged in the future?

The U.S. Congress established the National Flood Insurance Program with the passage of the National Flood Insurance Act of 1968. The purpose of the program is to make federally guaranteed insurance available to citizens in communities that adopt zoning regulations that control future development in flood hazard areas. Traditionally, the response to flood disasters was generally limited to building flood control structures such as dams, levees or seawalls which are often powerless against a major coastal flood, with its heavy rains, high winds and waves. To make matters worse, the public could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

Through the National Flood Insurance Program, people owning or buying property in the flood plains can now insure against flood losses. With more careful local management, new or substantially improved construction, if permitted by the local government, will better withstand flooding. As a result of this, taxpayers will be called upon less often to

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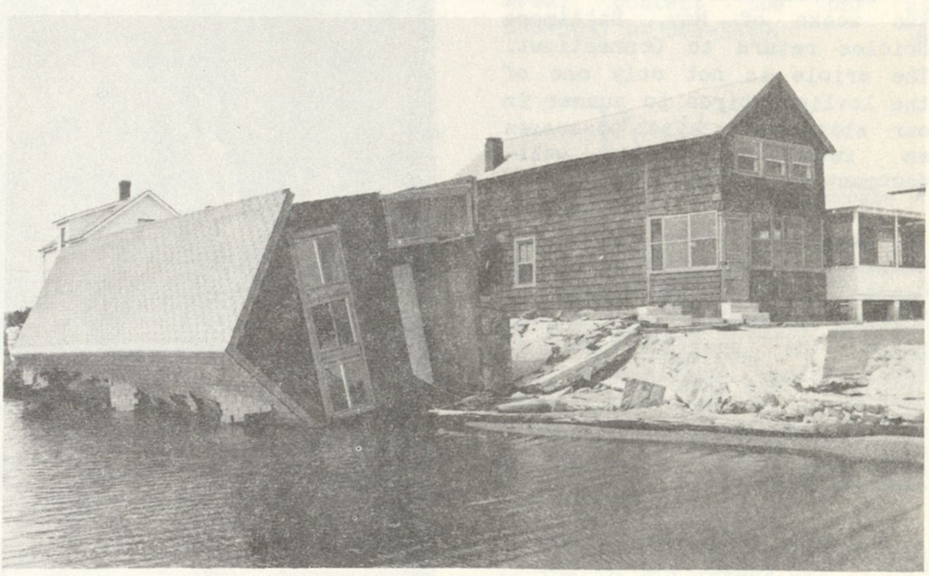
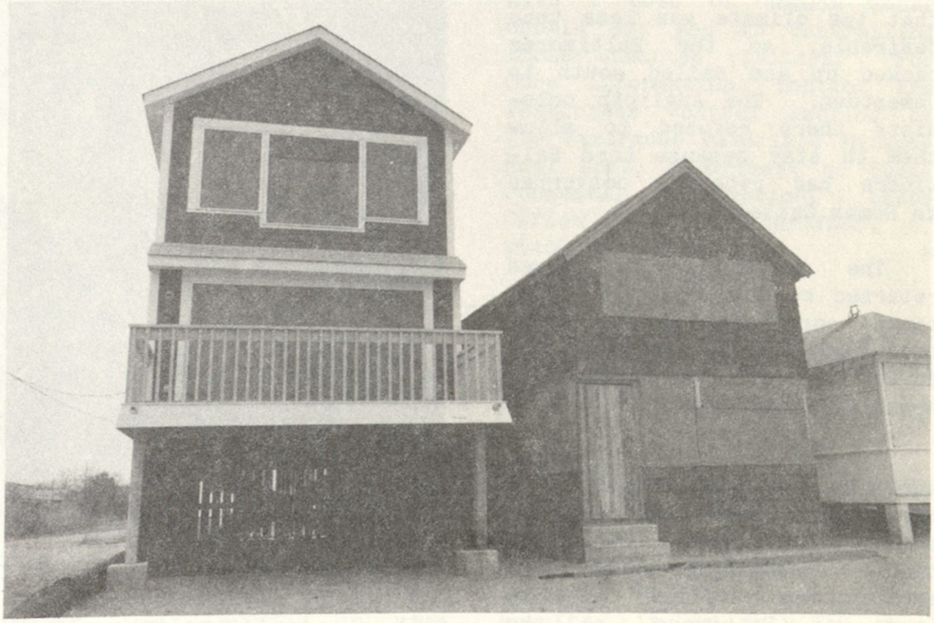


This seasonal cottage in Old Lyme collapsed during the 1982 June flood. It lies in a pool of water formed by a "washout" of the rain-swollen creek on the landward side of the row of houses.



Dan Rothenberg photos

The same cottage (on the left), has been rebuilt to conform with federal flood standards. It has been elevated on pilings and the lowest area is enclosed by breakaway walls.

Lord Baltimore's bird

By Nancy Kriz

Sometime during the first two weeks of May, Baltimore orioles return to Connecticut. The oriole is not only one of the lovliest birds to summer in our state, but also possesses an interesting and well-documented history.

About ten years before the sailing of the Mayflower, Lord George Calvert Baltimore, an English statesman, began to explore the possibilities of establishing settlements in America. He had been financially involved in the Virginia Company, which had founded Jamestown in 1607.

In 1621, Baltimore initiated the establishment of a small settlement in Newfoundland. He traveled with his wife and children to the new colony. They soon discovered that the climate was less than desirable, so the Baltimores packed up and sailed south to Jamestown. The Anglican colonists there refused to allow them to stay because Lord Baltimore had recently converted to Roman Catholicism.

The unwelcomed Baltimores returned to England. Lord Baltimore convinced his son, Lord Cecilius Calvert Baltimore, to found a Catholic settlement north of Jamestown.

In 1632, Maryland was chartered as a British colony. The arriving settlers took note of a handsome orange and black bird. Amazingly, the bird sported the "colors" of the Lords of Baltimore, so the early colonists called the orioles "Baltimore birds." Nearly one hundred years after the naming of the orioles, the city of Baltimore was established in 1729, and became the first Roman Catholic diocese in America.

Leonard Lee Rue III

Female Baltimore (northern) oriole on nest.

Orioles are prevalent in Connecticut during the summer months. They usually arrive just after the barn swallows and, like the red-winged black-

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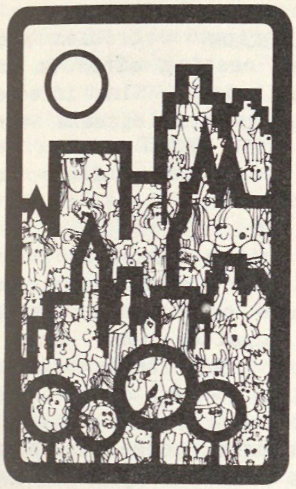

For Your Information

Motor oil warnings

By Leslie Bieber,
Citizens' Participation Coordinator

Used Motor Oil

Service station workers, engine mechanics and any other workers who handle motor oil are advised to minimize skin contact with used oil, and promptly remove any used oil from their skin.

In a laboratory study, mice developed skin cancer after their skin was exposed to used motor oil twice a week without being washed off for most of their life span. While this one study is not conclusive, substances found to cause cancer in laboratory animals may also cause cancer in humans.

Recommendations

DO'S

* DO follow work practices that minimize the amount of skin exposed and the length of time used oil stays on skin.

* DO thoroughly wash used oil off skin as soon as possible with soap and water. A waterless hand cleaner can be used when soap and water are not available. Always apply skin cream after using waterless hand cleanser.

* DO wash oil-soaked clothing before wearing it again. Discard oil-soaked shoes.

* DO use gloves made from nitrile, Neoprene, Viton or other material that oil cannot penetrate, if this is practical for your kind of work.

DONT's

* DON'T use kerosene, thinners or solvents to remove used motor oil. They remove the skin's natural protective oils and can cause dryness, irritation, and possibly more serious toxic effects.

* DON'T over-use waterless hand cleaners, soaps or detergents. They can remove the skin's protective barrier oils.

* DON'T put oily rags in pockets, or tuck them under a belt: this can cause continuous skin contact.

* DON'T pour used engine oil on the ground or down drains and sewers; it is a violation of Federal Law. (Chapter 40 Code of Federal Regulations Section 110.) EPA encourages collection of used motor oil at collection points in compliance with appropriate state and local ordinances.

For Further Information

Call toll free: 800-424-9065; Washington, DC: (202) 554-1404; Outside USA: Operator 202-554-1404; or write Jack P. McCarthy, Director TSCA Assistance Office, Office of Toxic Substances, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460.

For locations of waste oil recycling facilities in your area, contact the DEP at 566-5847 or 566-3489. ■

Pesticide

From page 14

safe to use if directions are followed. Don't over-apply a pesticide. Using twice as much of a substance doesn't make it twice as effective. Use extra care if you have small children or pets at home; products that are sweet-tasting or smelling may be attractive to more than just pests.

People have probably been trying to rid themselves of unwanted pests as long as they have been able to reason. These helpful hints taken along with a dose of common sense should aid you in controlling those unwanted visitors. For more information, contact the Pesticides Control Section of the Hazardous Materials Management Unit, Department of Environmental Protection, State Office Building, Hartford, CT 06106, 566-5148. ■

Deer Report

From page 17

Shotgun hunters on state land took 232 deer in the "A" Season and 143 in the "B" Season. Although this seems low compared to the Private Land results, it is only 70 deer fewer than 1982. Poor weather in the beginning of the "B" Season and 1,055 fewer State

Land permits bought in 1983 contributed to this slight decline. Hunters in the Housatonic, Salmon River, Cockaponset, and Pachaug State Forests had the most success.

Those persons hunting during the two-month Landowner Season took 711 deer. These permit holders continue to be the most buck selective taking 482 males and 229 females, a 2:1 ratio. As with other private land permits, they too were given a second deer tag, 76 of which were filled.

Further details on revenue generated, venison harvested, and hunter survey analysis will be released as soon as the information is compiled. ■

Rebuilding

From page 19

provide expensive relief for flood disasters. By the year 2000, the flood insurance program will save the American taxpayer and flood victims approximately $1.7 billion a year.

Let's suppose that you do own a home on a part of the Connecticut shore that has been designated as a flood hazard area and your home (like the one in the photos taken in Old Lyme) is destroyed by a flooding disaster. As long as your town's zoning regulations allow it, you may rebuild your home so that it is "floodproofed" by complying with certain standards. The construction must minimize potential flood damage and the water supply and sewage systems must be floodproofed. The building itself must be elevated to or above the "base flood level" -- an elevation set as a result of a detailed on-site engineering survey done throughout the community by the Federal Emergency Management Agency.

If, however, your home is located in a *high* flood hazard area, you may still rebuild, but the safety requirements are more stringent. In addition to complying with the standards for regular flood hazard areas, there are several other requirements that must be fulfilled. The building must be elevated on pilings or columns and must be raised to or above the base flood level (taking into account the height that waves would be likely to reach during a storm.) The space below the lowest floor must be free of obstructions, or if it is enclosed, it must be enclosed by "breakaway walls" -- walls that "give" under pressure of onrushing water, so that the house does not capsize. Since sand dunes are nature's wave buffers, the bulldozing of sand dunes is not allowed, nor is the use of fill for structural support of the building itself.

In the United States, property damage as a result of flooding currently adds up to more than $1 billion a year. A strong local commitment to sound flood-plain management will go a long way toward minimizing these losses. ■

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Baltimore

From page 20

birds, the males precede the females. Orioles enjoy nesting in apple orchards or in tall trees. They sing a clear, five note song which varies from bird to bird -- a tune Henry David Thoreau described as "Eat it, Potter, eat it."

Some years ago, the oriole population suddenly decreased drastically. The reason remained a mystery until the publication of Rachel Carson's *Silent Spring*. Orioles once preferred nesting sites in mature elm trees. Elms infected with Dutch elm disease were sprayed with DDT, causing the death of huge numbers of orioles.

The oriole's nest is artistically and cleverly designed. The female constructs it while hanging upside down from a branch. She weaves twigs, horsehair, string, milkweed pod silks and other plant materials into a hanging pocket which may be eight inches deep. She then lines the pocket with a layer of soft hair or grass.

Orioles feed on insects with a preference for caterpillars. They have been known to destroy whole colonies of destructive tent caterpillars, so Baltimore orioles are not only beautiful birds, but are very beneficial summer residents as well. ■

Better Water People for Week

In tribute to the tremendous service which Connecticut's water utilities provide and to the dedication of the Connecticut Section of the American Water Works Association (AWWA), which is committed to the preservation of a plentiful supply of clean water in our state, May 6 through May 12, 1984 has been designated as Better Water for People Week in Connnecticut.

The health, comfort and standard of living of all Connecticut citizens depend on an abundant supply of safe, high quality water. The problems involved in providing a reliable water supply are many and are growing more complex.

The water utilities of our state and nation perform a critical function in keeping this valuable resource flowing to our citizens, especially in light of increasing incidents of contamination. Freeing our water of potentially harmful substances is their on-going concern. Their work involves complicated filtration systems, sophisticated chemical treatment processes, and constant monitoring for water quality, equipment, plants and reservoir maintenance.

Each year, to draw further attention to the requirements for maintaining a plentiful supply of clean water in our state, the Connecticut Section of the AWWA sponsors a special week to recognize the achievements of the "clean water" industry.

The AWWA works to meet the highest standards of purity and quality. Its members are concerned about the threat posed by toxic chemicals in the environment, the need to provide more efficient water delivery as energy costs continue to escalate, and recognition of the deterioration of many older urban water systems. ■

Watershed Council plans canoe trip

This will be no ordinary canoe trip. On May 20, 1984 the Connecticut River Watershed Council, a non-profit conservation organization based in Easthampton, Massachusetts, and with offices in New Hampshire and Connecticut, will embark on what may just be the most noteworthy single effort in its history -- its third journey from the Fourth Connecticut Lake to Long Island Sound. Source to the Sea '84 will be unprecedented in its scope and in the extent of citizen participation. For more than four weeks, CRWC canoes -- filled with writers, photographers, ecologists, and water quality specialists, and accompanied by other willing river travelers -- will follow the entire course of the Connecticut River.

As was the case in 1959 and 1981, the trip's purpose will revolve around the need for valley residents to recognize, or perhaps to remember, the incredible beauty and value of the river, its tributaries, and the lands that it drains. According to Geoff Dates, chairman of the Council, " 'Source to the Sea' is above all a celebration of the river that forms the backbone of New England. At the same time it is an opportunity for valley residents to learn about the continuing resource pressures and problems of the region and to become actively involved in shaping the valley's future course."

Dates also noted "The year 1984 has particular significance because of the pending reauthorization of the Clean Water Act, the upcoming Presidential elections, and a major commitment of CRWC to develop new projects relating to water quality, water supply, and land conservancy that will respond to the needs of the valley and its citizens."

Activities and events are being planned by volunteers in each state which will reflect the multitude of resource issues affecting the valley. Water quality and agricultural land preservation forums, lectures, slide shows, canoe races, concerts, and canoe clinics are just some of the activities being organized. Contacts are being established with every town along the river's 411 mile length and with organizations which may wish to participate. We encourage every citizen and organization to join us in making the "Source to the Sea" journey symbolize the renewed commitment by valley residents to protecting and restoring this common resource. If you would like more information please contact: Denise Schlener, CRWC, 200 Sullivan Avenue, South Windsor, CT 06074 or call 528-6689.

The tentative schedule is:

May	19	Pittsburg, NH Moose Falls Campground
	20	Pittsburg, NH
	21	Pittsburg, NH 1st Conn. Lake
	22	Canaan, VT
	23	Colebrook, NH
	24	Bloomfield, VT
	25	Guildhall, VT
	26	Lancaster, VT
	27	Gilman, VT/Littleton, NH
	28	Comeford Dam
	29	Woodsville, NH
	30	Newbury, VT
	31	Bradford, VT
June	1	Lyme, NH
	2	Hanover, NH
	3	Cornish, NH/Windsor, VT
	4	Charlestown, NH
	5	Walpole, NH
Mass.	6	Brattleboro, VT
	7	Northfield, MA
	8	Hatfield, MA
	9	Holyoke, MA
	10	Springfield, MA
Conn.	11	Windsor, CT
	12	Hartford, CT
	13	Glastonbury, CT
	14	Middletown, CT
	15	East Haddam, CT
	16	Essex, CT
	17	The Sound

■

Junior Conservation Camp

The Connecticut Wildlife Federation has scheduled its Junior Conservation Camp for the week of August 12 through August 18, 1984. The camp, which is for boys aged 12 to 14, is designed to give campers a better understanding of the outdoors and the conservation ethic.

Earlier years' programs have included sessions on rifles and muzzle loaders, target shooting, trapping, bow hunting, fishing, fly casting, fish biology, wildlife biology, forestry, and conservation. This year a full Hunter Safety Program is planned.

The Conservation Camp is held at Camp Workcoeman in New Hartford. Cost is $140 per camper. If you are interested in more information, please contact the Connecticut Wildlife Federation, 27 Washington Street, Middletown, CT 06457, (203) 347-1291. ■

Connecticut Leadership 84

The 1984 Connecticut Leadership Conferences, to be convened in Bridgeport May 24 and in Hartford June 5, will provide a variety of workshops and presentations on the topic of volunteering. Designed for both volunteers and professionals in the field of volunteer management, the 1984 Conferences will offer skills training workshops as well as presentations and discussions of issues and trends in volunteerism.

Sponsored by the Governor's Council on Voluntary Action, the Connecticut Leadership Conferences are supported by dozens of corporate, civic and voluntary organizations across the State. A $12 fee covers a full day with three workshops, lunch and printed materials. New to the Conference this year are an extensive resource display of materials pertinent to volunteerism organized and staffed by personnel from several of Connecticut's voluntary action centers and lunchtime-swap shops where participants can share concerns and trade ideas on several topics.

Each conference participant will be able to select from twenty topics for the three workshop sessions offered. Workshops will address skills including interviewing, public speaking, meeting planning, and program monitoring and evaluation. New volunteers -- or those contemplating a new volunteer experience -- may wish to participate in "All You Need to Know About Being a New Volunteer," while the more seasoned volunteer and administrators may be involved in "Creative Planning for the Very Experienced Volunteer." Other workshops new to the program this year include "The Payback of Volunteerism," "Organizing to Become a Community Force," and "Understanding the Political Process." A special double session workshop, led by Winifred Brown of the New York Mayor's Office for Volunteers, will explore "Issues and Trends in Volunteerism for the '80's" at the Bridgeport conference.

Volunteers and all interested in volunteerism are urged to attend one or both of the Connecticut Leadership Conferences. For further information, contact Karen Mangle, Coordinator, Connecticut Leadership Conferences, Governor's Council on Voluntary Action, 80 Washington Street, Hartford, CT 06106, 566-8320. ■

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